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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,398	10/12/2005	Hannu Mikkonen	0365-0627PUS1	1581

2292 7590 05/18/2009
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EXAMINER	
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ART UNIT	PAPER NUMBER
1623	

NOTIFICATION DATE	DELIVERY MODE
05/18/2009	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

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ADVISORY ACTION

The proposed amendments AFTER FINAL, filed 29 April 2009, will be entered.

This Office Action is responsive to Applicant's Amendment and Remarks, filed 29 April 2009, in which claim 9 is amended for clarity and claim 30 is canceled.

Continuation of 5.

Rejections Withdrawn

Applicant's Amendment, filed 29 April 2009, with respect to Amended Claims 9 and 30 rejected under 35 U.S.C. 112, second paragraph, as being indefinite has been fully considered and is persuasive, as claim 30 is canceled and amended claim 9 specifies the ratio.

This rejection has been **withdrawn**.

Applicant's Amendment, filed 29 April 2009, with respect to Amended Claims 1, 5-12, 14, 15 and 22-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (US Patent 3,346,558, issued 10 Oct 1967, of record) in view of Leitheiser et al. (Ind. Eng. Chem. Res. Dev., 1966, 5(3), p276-282, of record) has been fully considered and is persuasive with regard to claim 30, as claim 30 is canceled.

This rejection of claim 30 has been **withdrawn**. This rejection of claims1, 5-12, 14, 15 and 22-29 is maintained as detailed below.

Continuation of 11.

Amended Claims 1, 5-12, 14, 15 and 22-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Roth (US Patent 3,346,558, issued 10 Oct 1967, of record) in view of Leitheiser et al. (Ind. Eng. Chem. Res. Dev., 1966, 5(3), p276-282, of record) as detailed in the Final Office Action mailed 29 Oct 2008.

Roth in view of Leitheiser et al. teach as detailed in the Final Office Action mailed 29 Oct 2008 separately and combined as detailed therein.

Response to Applicant's Remarks:

Applicant's Remarks and evidence, filed 29 April 2009, have been fully considered and not found to be persuasive.

Applicant states that neither Roth nor Leitheiser teach the acidic catalyst is phosphoric acid, hypophophorous acid, and phosphorous acid. However, the method is recited using the open language of "comprising". Therefore the teaching of Leitheiser of the method using acidic conditions wherein the acid catalysts is a mixture of sulfuric acid and phosphoric acid is encompassed by the instantly claimed method comprising the step wherein the acidic catalyst selected from phosphoric acid. According to statistical distribution of possible reactions, the method using acidic conditions wherein the acid catalysts is a mixture of sulfuric acid and phosphoric acid would necessarily include reactions wherein the acidic catalyst is phosphoric acid.

Applicant notes that Roth teaches sulfonic acids are preferred. However, "the nature of the teaching is highly relevant and must be weighed in substance. A known or obvious composition does not become patentable simply because it has been described

as somewhat inferior to some other product for the same use.", see MPEP 2145 X.D.1. The nature of the teaching of Roth is toward suitable acid catalysts (column 3, lines 30-35) of which the preferred sulfonic acids are included, as well as teaching "[s]trong mineral acids such as sulfuric acid, hydrochloric acid, etc. can be employed" (emphasis added), suggest the teaching of Roth et al. as the strong mineral acids as somewhat inferior does not in this instance constitute a teaching away from said strong mineral acids as an equivalent catalyst.

Applicant provides evidence to show different properties of the claimed method using the phosphorous-containing acid. This objective evidence must be considered carefully, as this evidence may show unexpected results that rebut any *prima facie* case of obviousness. The provided evidence has been fully considered and is found not to be persuasive. Notably, presumably to provide uniform reaction conditions, the evidence appears to utilize an equivalent mass of catalyst of the para-toluenesulfonic acid (TsOH) taught by Roth and presumably hypophosphorous acid (H_3PO_2) according to the instant invention. Applicant recites the example use hypophosphoric acid ($H_4O_6P_2$), an acid that has a distinct chemical formula from the instantly claimed hypophosphorous acid (H_3PO_2), at page 11, however this has been interpreted as a typographic error regarding evidence drawn to hypophosphorous acid (H_3PO_2). However, it is well known that acid catalysed reactions in homogeneous phase abide certain rules that make the kinetic constant a function of the acid strength of the catalyst—the Brönsted equations. It is well known that the acid TsOH is a very strong acid having a pK_a of -6.62. It is well known that the acid H_3PO_2 is a strong acid having a

pK_a of 1.1. Therefore the acid TsOH is more than 10^7 times stronger than H_3PO_2. In view of the well-known relationship between catalyst activity and acid strength in acid catalysed reactions, one of ordinary skill in the art would not find it unpredictable that a reaction using an equivalent mass of catalyst of the very strong acid TsOH would lead to degradation of the product, as Roth at column 3, lines 40-50 teaches possible deleterious effects and side reactions are known, compared to a reaction using an equivalent mass of catalyst of the merely strong acid H_3PO_2.

/Shaojia Anna Jiang/

Supervisory Patent Examiner, Art Unit 1623